

10/005552

CGC



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Number: 6891010  
Issued: May 10, 2005  
Names of Patentees: Jay F. Kunzler et al.  
Title of Invention: Silicone Hydrogels Based on Vinyl Carbonate Endcapped  
Fluorinated Side Chain Polysiloxanes  
Docket No.: P02460

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited in the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, Certificates of Correction Branch, P.O. Box 1450, Alexandria, VA 22313-1450, on March 23, 2007.

  
Judith Davis

**REQUEST FOR CERTIFICATE OF CORRECTION  
UNDER 37 CFR 1.322**

Commissioner of Patents  
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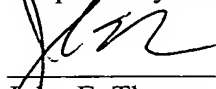
Attn: Certificates of Correction Branch

Sir:

Enclosed is a Certificate of Correction for the above-identified issued patent.

The errors in columns 11 and 13 are Patent Office errors. Correction of these errors is requested under 35 USC 254 and 37 CFR 1.322.

Respectfully submitted,

  
John E. Thomas  
Attorney for Applicant  
Registration No. 34,070

**Certificate  
MAR 29 2007  
of Correction**

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Dated: March 23, 2007

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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 6891010

APPLICATION NO.: 10/005,552

ISSUE DATE : May 10, 2005

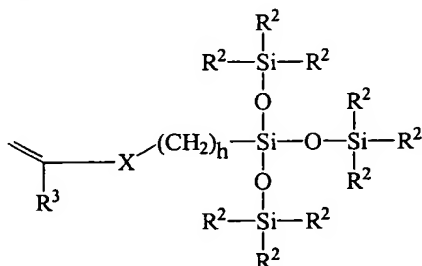
INVENTOR(S) : Jay F. Kunzler, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

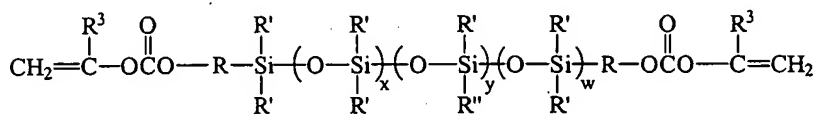
Col. 11, line 56

replace "--D--(CF<sub>2</sub>)<sub>2</sub>--H"  
with ---D--(CF<sub>2</sub>)<sub>z</sub>--H--

Col. 13, line 1  
replace "



with --



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Bausch & Lomb Incorporated  
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Rochester, New York 14604

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TABLE 6-continued

Ex	Prepolymer of Ex 5	Solvent	TrisVC	NVP	Modulus	Tear	Dk	% Water
56	50	17.3	45	27	68	7	116.6	34.8
57	50	17.3	45	27	74	10	172.8	20.8

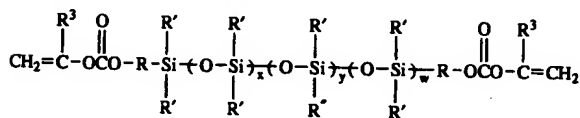
## EXAMPLE 58

Various monomer mixtures in Tables 2-6 may be used to cast contact lenses. The monomer mixture is placed on the molding surface of a first plastic mold section, shaped to provide an anterior contact lens surface, and a second plastic mold section having a molding surface shaped to provide a posterior contact lens surface, the monomer mixture being contained in the mold cavity formed between these two molding surfaces. This assembly is subjected to a UV light source to cure the monomer mixture. Following curing, the two mold sections are separated to recover the contact lens.

Many other modifications and variations of the present invention are possible to skilled practitioner in the field in light of the teachings herein. It is therefore stood that, within the scope of the claims, the present invention can be practiced than as herein specifically described.

We claim:

1. A hydrogel that is the hydrated polymerization product of a monomer mixture comprising a hydrophilic monomer, and a monomer of the formula:



wherein:

each R is independently an alkylene group having 1 to 10 carbon atoms which may have ether linkages between carbon atoms;

each R' is independently a monovalent hydrocarbon radical or a halogen substituted monovalent hydrocarbon radical having 1 to 18 carbon atoms which may have ether linkages between carbon atoms;

each R<sup>3</sup> is hydrogen or methyl

w and x are each ≥ 0;

y is ≥ 1;

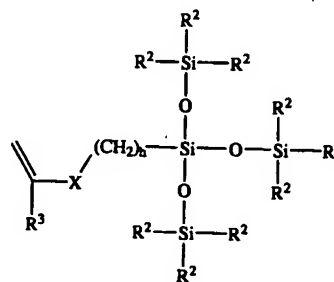
w+x+y=2 to 1000; and

R<sup>3</sup> is a fluorinated side chain of the formula  $-\text{D}-(\text{CF}_2)_z-\text{H}$  wherein z is 1 to 20, and D is an alkylene group having 1 to 10 carbon atoms which may have ether, carbonate, carbamate, ester or amide linkages between carbon atoms,

wherein said hydrogel has an oxygen permeability of at least about 120 Barrers, a water content of at least about 20 weight percent, and a modulus no greater than about 97 g/mm<sup>2</sup>.

2. The hydrogel of claim 1, wherein said monomer mixture further comprises a monofunctional polysiloxanylalkyl monomer.

3. The hydrogel of claim 2, wherein the monofunctional polysiloxanylalkyl monomer is represented by the formula:



wherein:

X denotes  $-\text{OCO}-$ , or  $-\text{OCONR}^4-$  where each R<sup>4</sup> is H or lower alkyl;

R<sup>3</sup> denotes hydrogen or methyl;

h is 1 to 10; and

each R<sup>2</sup> independently denotes a lower alkyl or halogenated alkyl radical, a phenyl radical or a radical of the formula  $-\text{Si}(\text{R}^5)_3$  wherein each R<sup>5</sup> is independently a lower alkyl radical or a phenyl radical.

4. The hydrogel of claim 3, wherein the monofunctional polysiloxanylalkyl monomer is selected from the group consisting of 3-[tris(trimethylsiloxy)silyl] propyl vinyl carbamate and 3-[tris(trimethylsiloxy)silyl] propyl vinyl carbonate.

5. The hydrogel of claim 1, wherein said hydrophilic monomer is selected from the group consisting of N-vinyl-N-methyl acetamide, N-vinyl-N-ethyl acetamide, N-vinyl-N-ethyl formamide, N-vinyl-formamide, N-vinyl-2-pyrrolidone, and mixtures thereof.

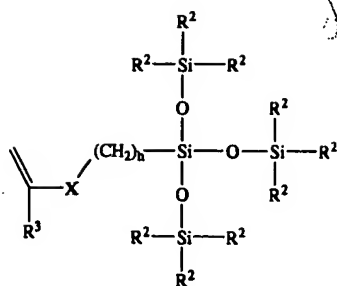
6. The hydrogel of claim 5, wherein the hydrophilic monomer includes N-vinyl-2-pyrrolidone.

7. The hydrogel of claim 1, wherein R<sup>3</sup> is  $-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{O}-\text{CH}_2-(\text{CF}_2)_4-\text{H}$ .

8. A contact lens made from the polymerization product of a monomer mixture which comprises a vinyl carbonate endcapped polysiloxane containing a fluorinated side chain, wherein said contact lens is composed of a hydrogel having an oxygen permeability of at least about 120 Barrers, a water content of at least about 20 weight percent, and a modulus no greater than about 97 g/mm<sup>2</sup>.

9. The contact lens of claim 8, wherein the vinyl carbonate endcapped polysiloxane is of the formula:

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wherein:

each R is independently an alkylene group having 1 to 10 carbon atoms which may have ether linkages between carbon atoms;

each R' is independently a monovalent hydrocarbon radical or a halogen substituted monovalent hydrocarbon radical having 1 to 18 carbon atoms which may have ether linkages between carbon atoms;

each R<sup>3</sup> is hydrogen or methyl

w and x are each  $\geq 0$ ;

y is  $\geq 1$ ;

w+x+y=2 to 1000; and

R<sup>+</sup> is a fluorinated side chain of the formula —D—(CF<sub>2</sub>)<sub>z</sub>—H, wherein z is 1 to 20, and D is an alkylene group having 1 to 10 carbon atoms which may have ether, carbonate, carbamate, ester or amide linkages between carbon atoms.

10. The contact lens of claim 9, wherein the monomer mixture further comprises a hydrophilic monomer.

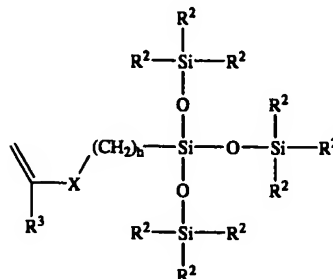
11. The contact lens of claim 10, wherein said hydrophilic monomer is selected from the group consisting of N-vinyl-N-methyl acetamide, N-vinyl-N-ethyl acetamide, N-vinyl-N-ethyl formamide, N-vinyl-formamide, N-vinyl-2-pyrrolidone, and mixtures thereof.

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12. The contact lens of claim 11, wherein the hydrophilic monomer includes N-vinyl-2-pyrrolidone.

13. The contact lens of claim 10, wherein said monomer mixture further comprises a monofunctional polysiloxanylalkyl monomer.

14. The contact lens of claim 13, wherein the monofunctional polysiloxanylalkyl monomer is represented by the formula:



wherein:

X denotes —OCOO—, or —OCONR<sup>4</sup>— where each R<sup>4</sup> is H or lower alkyl;

R<sup>3</sup> denotes hydrogen or methyl;

h is 1 to 10; and

each R<sup>2</sup> independently denotes a lower alkyl or halogenated alkyl radical, a phenyl radical or a radical of the formula —Si(R<sup>5</sup>)<sub>3</sub> wherein each R<sup>5</sup> is independently a lower alkyl radical or a phenyl radical.

15. The contact lens of claim 14, wherein the monofunctional polysiloxanylalkyl monomer is selected from the group consisting of 3-[tris(trimethylsiloxy)silyl] propyl vinyl carbamate and 3-[tris(trimethylsiloxy)silyl] propyl vinyl carbonate.

16. The contact lens of claim 9, wherein R<sup>+</sup> is —CH<sub>2</sub>—CH<sub>2</sub>—CH<sub>2</sub>—O—CH<sub>2</sub>—(CF<sub>2</sub>)<sub>4</sub>—H.

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